ART. XII.—*On the Fossil Eye and Teeth of the Ichthyosaurus Australis, (M'Coy), from the Cretaceous formations of the source of the Flinder's River; and on the Palate of the Diprotodon, from the Tertiary Limestone of Limeburner's Point, near Geelong.* By Professor M'COY.

[Read 30th July, 1868]

Mr. Carson, of Collins-street, has recently presented to the National Museum several important additional fragments of the first discovered Enaliosaurian fossil reptile of continental Australia, to which I gave on a former occasion the name *Ichthyosaurus Australis*; and these, with the previous donations of Messrs. Sutherland and Carson, enable me to bring before the Royal Society this evening some interesting additions to our knowledge of the most interesting fossil animal yet found in this country.

In the two portions of the head now on the table, the two remarkably characteristic bones of *Ichthyosaurus*, the *supersquamosal* and the *postorbital*, not present in crocodiles, are visible; and what is probably of more popular interest, the enormous eyes with their bony sclerotic coats are finely preserved. The eyes in this species measure (5½) five and-a-half inches in antero-posterior diameter, and the pupillary opening is little less than (2) two inches. It is not possible to be certain of the number of pieces into which the sclerotic is divided, but it is apparently about (13) thirteen, (there are seventeen in the European *I. communis.*)

Some of the bones now exhibited prove this species to have been one of the largest of the genus, one individual being from analogy, (25) twenty-five feet in length. The series of dorsal vertebræ exhibited with double articulations for the head and tubercle of the ribs on each side, are nearly (4) four inches in diameter, and the elastic capsule intervening between the doubly concave articular faces are well preserved.

The next portion of this curious fossil not previously known is one of the paddles. It has (8) eight rows of phalangeal bones, and as one edge is imperfect, it may have

had more; it is thus one of the most powerful swimmers of the genus, the species found in European rock having paddles with the phalangeal rows varying from (3) three to nine. The *humerus* is (5) five inches long, and the width of the distal end is of the two separate articulations, (2) two and ($2\frac{1}{4}$) two and a quarter inches respectively; the *radius* and *ulna* which follow, are each ($1\frac{1}{2}$) one and a half inches long, and (2) two and ($2\frac{1}{8}$) two and one eighth wide.

The teeth as seen in the last specimen presented by Mr. Carson, have a rough bony square base, like those of the *I. Campylodon*, (Carter), from the Lower Chalk of Cambridge, above which the smooth base of the crown has a circular section; the rest of the conical crown being longitudinally marked with close irregular, obtuse ridges, with much narrower intermediate impressed lines.

(Professor M'Coy demonstrated the anatomical characters of the specimens in full, and explained their affinities.)

Diprotodon.

The next colossal fossil animal of the country, a previously unknown portion I can bring before you this evening, is the palate and two rows of upper molars of the *Diprotodon*, lately found in the fresh-water Tertiary Limestone of Limeburners' Point, near Geelong. This specimen has been presented to the National Museum by Mr. Mercer, through the kind offices of Dr. Day of Geelong. The length of the palate is ($7\frac{1}{4}$) seven and-a-quarter inches, and the width between the premolars is ($3\frac{1}{8}$) three and one eighth inches, and the width between the hind molars is ($3\frac{1}{2}$) three and a half inches. All the proportions of the molars are so nearly like those of the series of molars of the lower jaw of the *Diprotodon longiceps*, (M'Coy), which I described at a former meeting of the Society, that the present specimen may I think be referred to the same species, and I now lay on the table the plates representing that species for the forthcoming Decades, I am preparing for publication, of the Natural History and Palæontology of Victoria. An extraordinary character of this specimen is the persistence of the premolars, which form a fifth molar on each side.